

Claims

1. Heat exchanger (1), in particular evaporator for an air conditioning system of motor vehicles,

comprising at least one header tank (2) having at least two header chambers (3, 4) wherein substantially each header chamber (3, 4) is substantially defined by a base device (12) and a top device (13);

wherein the top device (13) of a first header chamber (3) comprises a first middle side wall (15) and the top device (23) of a second header chamber (4) comprises a second middle side wall (25);

wherein at least a section of the first middle side wall (15) is positioned adjacent to the second middle side wall (25);

wherein a lateral distance of the first middle side wall (15) from the second middle side wall (25) increases with the distance from the base device (12) at least over a portion of the height (69) of the header tank (2).

2. The heat exchanger of claim 1, characterized in that the gap (22) between the first and the second middle side wall (15; 25) is substantially V-shaped.
3. The heat exchanger of claim 1 or 2, characterized in that at least one stabilizing device is mounted to at least one side wall (14, 15; 24, 25) to increase stability.

4. The heat exchanger of claim 3, characterized in that a longitudinal direction of at least one stabilizing device (31, 35) is substantially perpendicular to the base device (12).
5. The heat exchanger of at least one of the claims 3 or 4, characterized in that at least one stabilizing device (35) is configured as a depression system (35).
6. The heat exchanger of at least one of the claims 3 to 5, characterized in that at least one stabilizing device (35) is configured as a groove system (35).
7. The heat exchanger of at least one of the claims 3 to 6, characterized in that at least one stabilizing device (35) is substantially configured as a groove (35).
8. The heat exchanger of at least one of the claims 3 to 7, characterized in that at least one stabilizing device (31) projects outwardly.
9. The heat exchanger of claim 8, characterized in that at least one stabilizing device (31, 35) is configured as a crease system (31).
10. The heat exchanger of at least one of the preceding claims, characterized in that at least one partition is provided which comprises a guiding crease.
11. The heat exchanger of at least one of the claims 3 to 9, characterized in that

a depth (36) of at least one stabilizing device (31, 35) increases with a distance (29) from the base device (12).

12. The heat exchanger of at least one of the preceding claims, characterized in that
in a contact region of the middle side walls (15, 25) with the base device (12) a base recess (30) is positioned.
13. The heat exchanger of at least one of the preceding claims, characterized in that
at least one flat tube (40) has a smaller wall thickness (42, 45) in the region of a flange (49) than in a region of a radius (43).
14. The heat exchanger of claim 13, characterized in that
at least one flat tube (40) has a wall thickness (45) in the region of the flanges (49) smaller by at least 20 % than in a region of the radius.
15. The heat exchanger of at least one of the claims 13 to 14, characterized in that
at least one flat tube (40) has a wall thickness of approximately 0.3 mm at least at one position in the region of the flanges (49).
16. The heat exchanger of at least one of the claims 13 to 14, characterized in that
at least one flat tube (40) has a wall thickness (44) of approximately 0.5 mm at least at one position in the region of a radius (43).
17. The heat exchanger of at least one of the preceding claims, characterized in that
at least one top device (13, 23) is manufactured integrally.

18. The heat exchanger of at least one of the preceding claims, characterized in that at least one top device (13, 23) is manufactured integrally with the base device (12).
19. The heat exchanger of at least one of the preceding claims, characterized in that at least one connection aperture (6, 7) is arranged on a longitudinal side section (8) of the header tank (2).
20. The heat exchanger of at least one of the preceding claims, characterized in that the header tank (2) is connected with two rows of heat exchanger tubes (9) arranged in-line.
21. The heat exchanger of at least one of the preceding claims, characterized in that the base device (12) and/or the top device (13, 23) are formed of a pretreated plate.
22. The heat exchanger of at least one of the preceding claims, characterized in that at least one side wall (14, 15, 24, 25) comprises at least one tab (18) which is inserted in a recess (19) of the base device.
23. The heat exchanger of at least one of the preceding claims, characterized in that a cover lid (5) is arranged at least at one end face (38) of at least one header chamber (3, 4).
24. The heat exchanger of at least one of the preceding claims, characterized in that

at least one connection aperture (6, 7) is arranged at one end face (38) of at least one header chamber (3, 4) of the header tank (2).